EDITORIAL NOTICE.

On January 1st, 1908, the office of Dr. Adolf Alt, and the editorial rooms of the American Journal of Ophthalmology, will be removed to

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THE AMERICAN JOURNAL
OF
OPHTHALMOLOGY.

VOL. XXIV. DECEMBER, 1907. No. 12.

ORIGINAL ARTICLES.

HOMONYMOUS QUADRANT ANOPSIA (LEFT).*

By Llewellyn Williamson, M.D.,
ST. LOUIS.

Gentlemen:—In reporting this case I beg the indulgence of the section for I am no neurologist; but cases of this kind certainly stimulate one's interest in cerebral localization and it is for this reason, and because, too, it is a very perfect example of its class, that I present it to you.

The patient, who is, with the exception of a rheumatic affection of the right knee, a hale, hearty, man, of sixty, came to the eye clinic of the Washington University Hospital, October 4th, saying he could not see well to read. Examination by one of the assistants showed V. O. D. 15/30, with plus 0.25 D. S.=15/24; V. O. S. 15/30, with plus 0.50 D. S.=15/15: P. P. Snellen

*Case presented before the Ophthalmic Section, St. Louis Medical Society.

1.5@30 c.m. Plus 3.25 D. S. and plus 3.75 D. S. for right and left eye, respectively, were prescribed for near work only and with these he read the smallest Yeager easily at 33 c.m.

October 15th patient returned saying he was still having some trouble in reading and did not think his glasses suited him. He made the significant statement that he only saw a part of objects looked at; when looking at a horse and wagon, for instance, he could see the horse but not the wagon; and in reading, only a part of the line would be visible. He also made the very interesting statement that at times he saw flowers, butterflies, etc., before his eyes.

Suspecting, of course, a scotoma I immediately took his fields and found them as you see here. There is an entire absence of vision down and out in the left field and down and in the right field. These defects are most symmetrical, involving the entire field between the 75th and 180th meridian, and constitute a true quadrant anopsia. In addition you will notice that the field in the O. D. is somewhat contracted in its temporal half, and you will remember that the visual acuity was a trifle less in this eye than in the other.

Examination of the left fundus showed nothing except some evidences of arterio-sclerosis. The disc was a trifle hazy, the light streak in the arteries somewhat pronounced, and, to the upper and inner side of the disc, kinking of a vein could be seen where it is crossed by an artery. In the right fundus the disk presents a very peculiar appearance. Over the upper two-thirds of it a veil is apparently drawn so that it looks darker than normal and the edges are indistinct. The lower one-third is, by contrast, whiter than normal and has somewhat the appearance of a beginning atrophy. The line between the two portions is very distinctly drawn. Balance of fundus normal.

While the appearance of this disc is enough, perhaps, to account for the slight contraction of the field I do not believe it has any bearing on the scotoma. The question then that presents itself is where is the lesion located that causes this defect?

The theory of a partial decussation in the chiasm of the optic nerve fibres, first advanced by Joseph and Carl Wenzel in 1812, is pretty generally accepted now, I believe, although this view is opposed by such eminent men as Kolliker, Mandelstamm, and von Michel, who assert that there is a total crossing of these fibres. Both clinical and miscroscopical evidence, however, seems to establish, absolutely, the partial decussation. Woinow,

Hirschberg, Uthoff, Schmidt-Rimpler, and others have reported cases in support of this view. Woinow's case was interesting as post-mortem examination showed partial atrophy of the chiasm and both tracts resulting from ascending atrophy following extraction of an eye. Warrington and Dutton report a similar case. Such a condition could only occur in the presence of a partial decussation of the fibres.

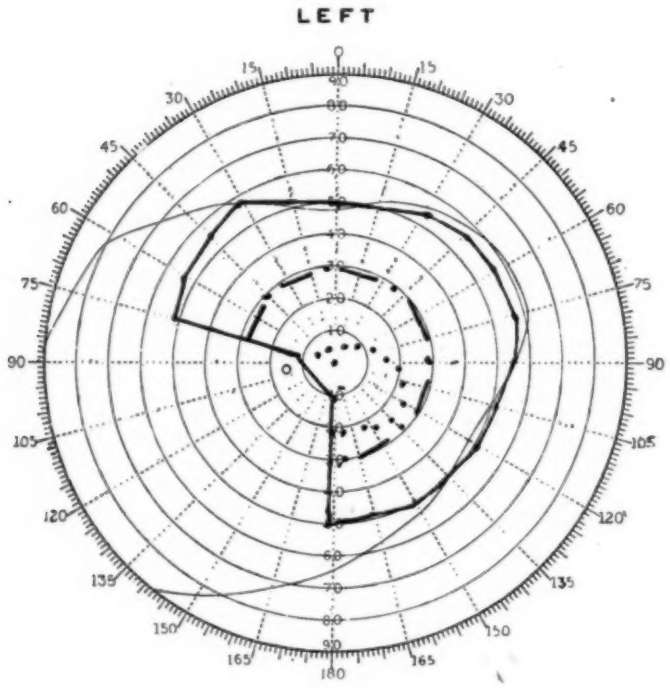
Henschen, who has done more work probably than any one else in this field, believes the course of the fibres is as follows. The fibres arising in the external half of the retina, known as the uncrossed fibres, are, in the anterior portion of the optic nerve, divided into two fascicles, the dorso-lateral uncrossed and the ventro-lateral uncrossed, the former supplying the upper and outer, the latter the lower and outer quadrants of the retina. Behind the entrance of the central vessels these two fascicles unite and form one bundle which lies somewhat ventro-laterally. The fibres from the inner half of the retina form one cord, the crossed bundle which lies dorso-medially in the nerve. Fibres supplying the macula form a separate bundle which contains both crossed and uncrossed fibres and occupies a central position in the nerve.

At the chiasm the uncrossed bundles, composed of fibres arising in the outer half of each retina, occupy the ventro-medial part of the periphery and pass on into the optic tract of the same side. The crossed fibres occupy the dorso-medial part of the periphery and pass into the tract of the opposite side. The macular bundle lies between the two and divides into uncrossed fibres entering the tract on the same side and crossed fibres entering the tract of the opposite side so that each macula is connected with both hemispheres.

Each optic tract, then, contains fibres from the outer half of the retina on its own side, from the inner half of the retina on the opposite side, and fibres from both maculæ. This latter, macular, bundle, according to Henschen, courses centrally in the tract; the uncrossed bundle lies dorso-laterally; and the crossed bundle lies ventro-medially. The bundles retain this position until they enter the Corpus Geniculatum, where they divide into a mass of separate fibres. Whether this separation is of such kind that distinct portions, or layers, of the ganglion correspond to certain quadrants of the retina, or not, is, as yet, unknown but it is believed that such is the case. At any rate the homonymous fibres probably lie close together.

According to Wilbrand the connection between the primary centres and the cortex is by fibres which arise in the larger cells of the Corpus Geniculatum, form a cord about 5mm. in thickness, pass anteriorly from the top of the first temporal sulcus into the second temporal sulcus, and spread in a radiating manner into the cortex at the top of the calcarine fissure.

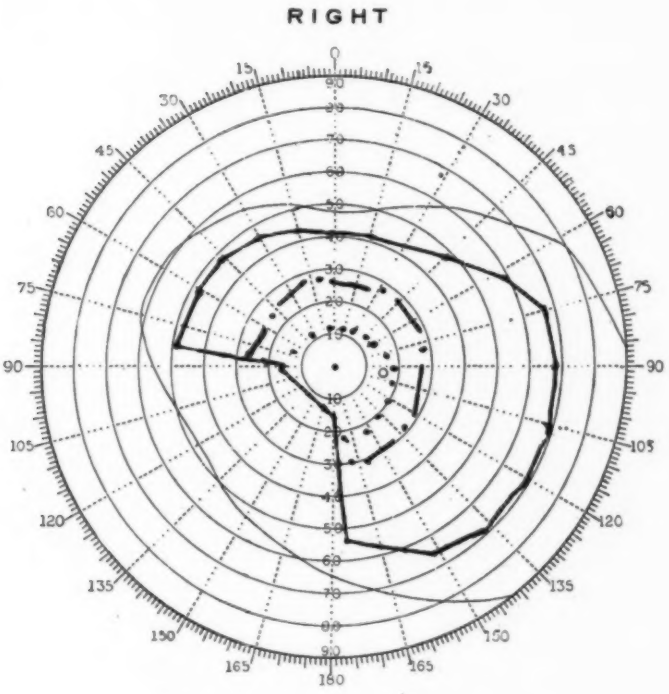
The calcarine fissure is, by most observers, thought to be the seat of the cortical visual centres. This was Henschen's view



J. B. SHERIDAN. October 15, 1907.
Test object 5 m.m. sq., good daylight.
Blue —·—·— Red · · · · · ·

and Spiller, drawing deductions from his investigations, says they seem to show that the upper part of the retina is represented in the upper part of the geniculate body and in the upper lip of the calcarine fissure; that the lower part of the retina is represented in the lower part of the external geniculate body and the lower lip of the calcarine fissure; and the horizontal zone of the retina, midway between the upper and lower zone, is represented in the base of the calcarine fissure.

The limiting of the visual cortex to the calcarine fissure, however, is opposed by many investigators. As evidence that the visual centres are not confined to the calcarine fissure alone Beevor and Collins report a case in which the only symptom was blindness in the left upper quadrants of both visual fields. Autopsy showed the cortex lining the calcarine fissure was completely necrotic. The only parts of the cortex of the mesial aspect of the occipital lobe which had escaped destruction were



J. B. SHERIDAN. October 15, 1907.
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the upper two-thirds of the Cuneus and the anterior and ventral portions of the fusiform gyrus. The authors therefore think that the half vision centre cannot be limited to the calcarine fissure and that the lower quadrants, at least, must be represented by the upper two-thirds of the cuneus.

Mills' conclusions with regard to the subdivisions of the retinal representation in the cortical visual centres are a combination of the views of Henschen and of Beevor and Collins.

He believes the lower quadrant of the field, or a little less than a quadrant, is represented in the upper half, or two-thirds, of the cuneus; that the upper quadrant, or a little less than a quadrant, is represented in the lower half of the cuneus, including the middle portion of the calcarine fissure; that the macula, or at least the fovea, is represented in the anterior extremity of the calcarine fissure and its cuneal border; and that a zone, or strip, of the peripheral retina is represented in the posterior extremity of the calcarine fissure and its cuneal border.

Bearing in mind then the visual pathway, from the retina to the visual cortex, the question arises as to the location of a lesion which would bring about destruction of function in the upper and outer quadrant of the right retina and upper and inner quadrant of the left retina, producing the scotoma seen in these fields.

It is obvious that the fibres affected belong to the uncrossed bundle of the right eye and the crossed bundle of the left eye. The lesion therefore must be on the right side and more central than the chiasm. Disease of the chiasm to produce these symptoms would require double foci, one involving the ventro-medial portion, in which situation lies the uncrossed bundle, and the other involving the dorso-medial portion in which lies the crossed bundle. It is not conceivable that this latter could be involved without involving the crossed bundle from the other eye and in that event we would have double hemianopsia in one eye and temporal hemianopsia in the other—quite a different picture from the one presented here.

Clearly the lesion must be in the right tract or further back, but the exact location of it is not easy. Personally I am inclined to think that in this case the lesion is in the neighborhood of the calcarine fissure, if we adopt Henschen's views in the upper lip of the calcarine fissure. In most cases of partial, symmetrical, hemianopsias which have come to autopsy the lesion has been found to be a cortical one.

In the tract the fibres from one hemisphere are all pressed close together in one small bundle so that in disease of this part of the conducting path a total, rather than partial hemianopsia would be expected. Then, too, fibres which supply identical portions of the retina are still separate in the tract and imperfect, symmetrical defects would imply two foci of disease, one involving only a part of the crossed and the other involving only a part of the uncrossed bundles. In as small an area as the optic tract such a condition is not probable.

The absence, too, of the Wernicke hemianopic pupil reflex speaks against the lesion being in the tract or primary centres although too much dependence cannot be placed on that test in this case, because of the difficulty in accurately eliciting the reflex when only one quadrant of the retina is anopic. By means of a small concave mirror I endevored to throw a pencil of light on the anopic quadrant of the retina only and to exclude the light from the healthy portions. Whether I succeeded in doing this or not is not certain but, at any rate, there was no diminution in the reflex activity of the pupil.

This would seem to show that the lesion is a cortical one for, while the course of the pupillary fibres from the optic nerve to the oculo-motor nucleus has not been definitely demonstrated (although Bernheimer believed he could trace them through the anterior colliculus of the corpus quadrigeminum to the region below the aqueduct of Sylvius) it has been shown clinically that in disease of the optic nerve and tracts and of those portions of the basal ganglia which are concerned in vision, the pupil reflex is absent when light is thrown on the anopic side of the retina, owing to destruction of fibres going to the pupil reflex centre. In cases in which the lesion is situated in the cortex, or optic radiation, however, the pupillary response remains for the entire retina.

According to Wilbrand the focal symptoms of disease in the primary optic centres are generally homonymous hemianopsia with hemiplegia and hemianesthesia of the same side, this being in consequence of the involvement of the neighboring fibres passing along the internal capsule, or the pedunculus cerebri. Von Monakow states that hemianopsia as the result of a lesion confined to the anterior colliculus of the corpora quadrigemina has not been observed and it is doubtful whether a lesion confined to the pulvinar, and inmplicating the external geniculate body, causes hemianopsia. He says that a careful examination of reported cases shows that hemianopsia is most likely to occur from a lesion in the calcarine fissure.

Schmidt-Rimpler is of the opinion that pure hemianopsia, without symptoms of paralysis, especially if the hemianopsias are incomplete, are, with great probability, due to lesions in the cortical centre or in the optic radiation. Mills agrees with Schmidt-Rimpler that quadrant anopsia, particularly suggests a cortical origin, although not necessarily, for probably particular parts of the retina are represented by separate bundles in

the optic radiations as they are by subdivisions of the cortex. But hemianopsia due to lesions in the optic radiations is only in extremely rare cases an isolated symptom. Its associated manifestations may be few or comparatively many. It may, for instance, be a part of a symptom complex which includes alexia, dyslexia, paraphasia, and other symptoms so often combined with these forms of sensory aphasia. No such symptoms are present in this case.

The only symptom, other than the quadrant anopsia, is the hallucinations. How the hallucinations are brought about is not quite clear unless it is through irritation of the non-visual centripetal fibres which, in passing from the corpus geniculatum to the cortex, intersect the visual fibres. But they have been frequently reported and were present in a marked degree in this case. Schmidt-Rimpler makes a note of them and believes that hemianopsias, particularly the incomplete variety, if preceded or accompanied by hallucinations are generally associated with defects of the cortex.

The causes usually ascribed for hemianopsia are hæmorrhage, embolism, aneurism, abscesses, and tumors. In consideration tion of the sudden onset of this man's trouble, together with the fact that he shows distinct evidences of arteriosclerosis, and that the condition is non-progressive, I believe he has a small hemorrhage, or embolus in the region of the calcarine fissure.

AN UNUSUAL CASE OF PARENCHYMATOUS KERATITIS.*

By W A. Shoemaker, M.D.,
St. Louis, Mo.

Mrs. J., thirty-three years of age, consulted me on June 5th, 1906, giving the following history: Has always been myopic and has worn glasses for the last fifteen years. Her distant and near vision, with the glasses, had been good until three weeks ago, when she noticed that the nasal field of the right eye was blurred. Has noticed nothing unusual in her left eye. Her general health is good but she has a decidedly nervous temperament. She has two children, one six and the other two years old; both are in good health. Between the birth of these children she had three miscarriages. Her mother had five children, born at eight months; Mrs. J. being the fifth and the only one that lived.

Examination revealed the following condition:

In the right eye vision with —4.25 d. c. ax. 180 was 18/19— No ciliary or conjunctival injection, lacrimation or photophobia. The cornea was transparent with the exception of a spot 3 by 5 mm., having the appearance of ground glass, extending from the limbus on the nasal side toward and slightly in front of the pupil. The anterior chamber and the tension were normal. The iris had a muddy appearance, and reacted slugglishly to light. The vitreous was somewhat hazy and contained some floating exudates; there was a small spot of chorio-retinitis in the upper and another in the lower nasal quadrant, situated quite peripherally; some posterior staphyloma. In the left eye vision with —3.50 d. s. with —1.50 d. c. ax. 30 was 18/24. Otherwise the eye was normal with the exception of some posterior staphyloma. She seemed to be well nourished and in good health. Her teeth, however, were small, especially the incisors, which were slightly notched and widely separated.

A diagnosis of uveitis anterior, with parenchymatous keratitis, probably due to hereditary syphilis was made.

Bichloride of Mercury in 1/12 gr. doses was ordered to be taken three times daily. The external treatment consisted of the application of a three per cent solution of boric acid three times daily, for half an hour, as hot as could be borne, the instillation of

*Read at the November meeting of the St. Louis Ophthalmological Society.

a one per cent solution of sulphate of atropin three times daily, and, as there was no ciliary injection, stimulating treatment was at once begun by using the yellow oxide of mercury ointment once daily.

Under this treatment the peripheral part of the cornea became transparent but the opacity gradually spread over the centre of the pupil and ultimately entirely across the cornea, always remaining about the same size; disappearing on the nasal and extending on the temporal side. The progress of the case, as was to be expected, was slow; at no time was there any ciliary or conjunctival injection, lacrimation or photophobia.

By the following September the cornea was perfectly transparent ,the chorio-retinitis in the atrophic stage and the vitreous, with the exception of some floating exudates, quite clear. Vision with the proper glasses was 18/24.

Typical parenchymatous keratitis, as you very well know, occurs in the early periods of life, usually between the ages of six and twenty; rarely after thirty, although a few cases have been reported at the age of sixty. It usually begins with a slight ciliary congestion and lacrimation followed in a few days by a cloudiness in the margin or the centre of the cornea which gradually spreads until the entire cornea is opaque, marked ciliary congestion, photophobia and lacrimation, with vision frequently reduced to perception of light. In the severe types blood-vessels appear in the deep as well as in the superficial parts of the cornea, forming a close net work, at times making the cornea completely red. A mild form of the disease does not involve the entire cornea but is restricted to one or more maculæ, accompanied by slight ciliary injection, photophobia and lacrimation.

On the other hand very severe cases are sometimes seen, fortunately not often, in which the dense opacity is permanent; the cornea, by the shrinking of the exudate, becomes flat and the sight is lost. The iris is always inflamed or at least much congested.

Some authors think that the ciliary body, choroid and retina are always involved to a greater or less extent. Hirschberg thinks choroiditis occurs in most cases, while von Hippel says it is found in sixty per cent.

In many cases the part that the uvea takes is clinically not demonstrable; in others it is so prominent that the uveitis must be regarded as primary. Leber thinks that the keratitis is always

secondary to the uveitis, while von Michel and others believe that it is sometimes primary and sometimes secondary.

Optic neuritis, retinal hemorrhages and glaucoma occur at times as complications.

The other eye is usually attacked within two months. In rare instances it is delayed for one or even five or six years. When the disease does not develop until adult life the second eye frequently escapes. According to DeSchweinitz relapses are frequent; Fuchs says they occur, but are rare.

The duration of the disease is from six to eighteen months; the cornea seldom regaining its normal transparency.

Hutchinson believed hereditary syphilis to be the sole cause of parenchymatous keratitis; a view that is generally accepted in England but doubted on the continent.

Saemisch attributes to this cause sixty-two per cent of the cases; Mauthner eighty per cent, Horner sixty-four per cent, Silex eighty per cent, Panas forty per cent, Hess eighty per cent, and Fuchs says: "The more precise our knowledge becomes in regard to the symptoms of hereditary syphilis, the more surely we arrive at the conviction that this disease lies at the root of parenchymatous keratitis, whatever form the latter may take."

Acquired syphilis is, without doubt responsible for a limited number of cases; it usually occurs in adults between twenty and fifty and according to Lawford is nearly always limited to one eye. A few cases have been reported as occuring in children.

Tuberculosis of the anterior segment of the eye gets credit for a considerable number of typical cases. While rare clinical cases favor the view that primary tubercle of the cornea does occur, Parsons and Hansell believe that it is practically always secondary to tuberculosis of the uvea.

Rheumatism, gout, influenza, impaludism, uterine affections and contusions of the cornea are mentioned as rare causes, but these cases are usually atypical. A contusion of the cornea may, in a person suffering from hereditary syphilis, be the exciting cause of a typical case of parenchymatous keratitis which later on involves the second eye. Such cases are interesting from a medico-legal standpoint.

The particular pathogenesis of this disease is not definitely known. Panas and Fournier think that hereditary syphilitic keratitis should not be regarded as a localization of the syphilitic virus in the cornea but as an expression of a cachetic state or dyscrasia of the general system.

Von Hippel and Zimmerman have reported cases of parenchymatous keratitis, involving the entire cornea, due to tuberculosis, in which only the corneal periphery contained the tuberculous elements, showing that tuberculosis may exert a harmful influence on tissues adjacent to that which is affected.

Von Hippel believes that the presence of tuberculosis in the periphery of the cornea interferes with is nutrition and keratitis is the result.

There is some doubt as to the ætiology of the case reported by the writer. The family history, her physiognomy, the anterior uveitis and the absence of any other ascertainable cause led to the conclusion that it was due to hereditary syphilis.

The unusual features were:

(1) Her age.

(2) The absence of ciliary injection, photophobia and lacrimation.

(3) The character of the infiltration and its progress.

All of these features were probably due to a decidedly attenuated condition of the syphilitic virus.

PYOCYANEUS ULCER OF THE CORNEA.

Percy Fridenberg (*N. Y. Med. Jr.*, June 1) reports a case of ulcer of the cornea caused by the bacillus of blue pus. There was no history of any injury that could have permitted the bacilli to gain entrance into the corneal tissue, and the case occurred by the seashore where one would not expect to find such a case. In spite of vigorous treatment—cauterizing the ulcer with tincture of iodine and with the actual cautery—the entire cornea become involved and, while it did not perforate, rapidly became entirely shrunken and opaque, subsequently giving way to intraocular pressure, so that the globe was removed on account of the deformity and to avoid any possibility of sympathetic ophthalmia. Pure cultures were found in both ulcer and conjunctival sac, no other micro-organisms being found.

FOUR YEARS' WORK WITH THE OPHTHALMIC HOSPITALS IN EGYPT.

By A. F. MacCallan.

In a paper on Four Years' Work with the Ophthalmic Hospitals in Egypt, read in the Ophthalmological Section at the annual meeting of the British Medical Association at Exeter, Mr. A. F. MacCallan, F.R.C.S., Chief Inspector, gave a very interesting account of the ophthalmic hospitals in Egypt.

In the beginning of the year 1903 the Right Hon. Sir Ernest Cassel, G.C.M.G., gave a sum of £41,000 for the ophthalmic relief of the necessitous inhabitants of Egypt; Lord Cromer was appointed sole trustee, and his successor, Sir Eldon Gorst, K.C.B., has now taken his place. Under the advice of the Director General of the Department of Public Health a traveling ophthalmic hospital was organized, on the lines of the so-called "ophthalmic flying columns" existing at the time in Russia, and to this Mr. MacCallan was appointed Ophthalmic Surgeon and Inspector in 1903. His duties were to organize and administer the travelling ophthalmic hospital and to train in ophthalmic surgery Egyptian doctors attached to it.

Mr. MacCallan first made a general tour accompanied by his Egyptian assistant, formerly ophthalmic house-surgeon at the Cairo Government Hospital. By this tour he familiarized himself with the conditions under which the work would have to be carried on and obtained confidence that the scheme could be made a success. The first encampment, consisting of ten or twelve large Indian tents, was pitched in the neighborhood of a populous town of the Egyptian Delta called Menuf in January, 1904. Mr. MacCallan's staff consisted of his Egyptian assistants and clerks, hospital attendants, servants, watchmen, etc. The routine at the first camp was practically the same as that which obtained at all succeeding camps, except that there was afterwards a larger staff of assistants.

An Ophthalmic Camp.

Mr. MacCallan describes the day's work as follows:

Clinical work commences daily at 8:30 a.m. by a visit to the in-patients' tents and is followed by two hours' operating.

The operations having been finished, the dressing of out-patients' cases is proceeded with, and then the new cases are seen. Frequently there are at the present time as many as 200

new cases to be seen, and from whom the most urgent cases and those which will best repay treatment have to be chosen. As about one-third of all cases require operation, and as about 90 per cent have trachoma, the treatment of all would-be out-patients is impossible. When the old cases, between 200 and 300 in number, have been treated, minor operations are performed in the theatre, such as scraping the lids for trachoma, etc., and the morning work ends at 1.30 or 2 p.m.

In the afternoon more detailed examination of interesting cases is made, office work is done, and the tents are prepared for the next day's work.

Each Thursday is reserved for refractions, so on this day no operations are performed and no new patients seen. Rrefraction cases are likely to increase very greatly in the future. Friday, being the weekly government holiday, is a *dies non* except in so far as the dressing of in-patients is concerned.

Every patient treated at the hospital receives a numbered card and a leaden disc stamped with a number corresponding to the number on the card. Full clinical notes are written on each patient's card, which is kept at the hospital. At each visit the patient presents his number to the hospital clerk and receives his card, from which the surgeons at once learn the clinical condition and the progress of the patient. A record of every case treated is thus kept.

Each camping ground is occupied for a period of about six months, at the end of which time work is transferred to some other place. This is not because, even after prolonged stay in a place, there is any diminution in the number of people applying for treatment, but because we consider it only just, to give different provinces the benefit of ophthalmic treatment by the travelling hospital.

During the hottest summer months only rough house acommodation is used instead of tents.

Mr. MacCallan states that there is ample work for a permanent hospital in every large town. There never has been the slightest hesitation on the part of the people to visit the hospital for treatment or to submit themselves to whatever operation was advised. All patients are treated free, and are given lotions, etc., for home use. By far the greater number of patients appear to be very poor.

Future Development of Ophthalmic Hospitals.

When the success of the experiment was assured, a second traveling hospital was, again through the liberality of Sir Ernest Cassel, rendered possible. During the last two years one of these hospitals has been working in Upper Egypt and the other in Lower Egypt.

Owing to representations made by Mr. MacCallan, the Egyptian government has adopted the policy of building ophthalmic hospitals, one or more a year as the finances permit, and Mr. MacCallan received official rank for the purpose of controlling them, under the Director-General of Public Health. At Assiout, where one of the travelling hospitals remained six months, the inhabitants, seeing the immense amount of good which was being done, subscribed £5,000 towards building an ophthalmic hospital in that town.

Mr. MacCallan's staff at the present time consists of two English ophthalmic surgeons, four Egyptian surgeons, and a large clerical and hospital staff.

English Surgeons.—The number of English surgeons will not be increased. Extra Egyptian surgeons will be provided as the grants from the Ministry of Finance for each additional hospital are made, and as they become sufficiently trained in the special work. The duties of the English surgeons are to give instruction to the Egyptians and to be responsible for the clinical work of the camp they are in charge of. They have little or no administrative work. The posts are very valuable from the point of view of operative experience, as there is endless material always at hand. The posts are held for two years, during which three months' leave is granted on full pay. The pay, £E.500 a year, with the addition of two months' pay in lieu of travelling expenses to and from England, is sufficient to enable a man to save half his salary if he be so inclined.

Egyptian Surgeons.—The Egyptian assistants are paid at the rate of £E.220 a year on joining the hospitals, immediately after becoming qualified at the Medical School. They have usually at first no more ophthalmic knowledge than is picked up by the average medical student during his hospital career. Their interest in their work, which is often extremly onerous, their energy, and their progress are gratifying, and promise well for the future development of the scheme. They are not allowed to do private practice during two years of novitiate; at

the end of this time they will be appointed to the charge of permanent hospitals as these hospitals are completed. The opportunities that the Egyptian ophthalmic hospitals afford of acquiring experience of every kind, but especially operative experience, are, Mr. MacCallan believes, unrivalled. He hopes that in the future full advantage will be taken of these opportunities by Egyptians, and perhaps by Englishmen.

Clinical Work During 1906.

During the year 1906, 40,103 patients in all were examined at the hospitals, and of these 7,327 were admitted for treatment either as in-patients or as out-patients. The number of operations performed was 5,846, including minor operations (such as scraping the lids for trachoma) performed on 2,649 patients.

The number of patients with entropion or trichiasis seen during the year was 2,612, or 8 per cent of all the cases seen; the number of cases seen in which operations for trichiasis had already been performed, generally by charlatans, and in which the condition had either not been cured or had recurred, was 1,693, or 4.25 per cent of all the cases seen.

There is a great deal of glaucoma simplex in Egypt, but it is nearly always too late to operate when the patients present themselves for treatment. the number of cases of absolute glaucoma in one or both eyes was 701, or 1.7 per cent of all the cases seen.

The number of patients blind in one or both eyes was 1,960, or 4.9 per cent of all the people who applied for treatment.

During the year 1906, 657 cases of cataract were seen. Of the 487 cases of senile cataract 102 were operated upon, and of the 170 cases of soft cataract 123 were operated upon. In a large number of cases there was too severe a condition of trachoma to permit of operation being performed without a long period of treatment as a preliminary, and in many cases the cornea was greatly damaged.

Operations for Entropion.—The operation for entropion or trichiasis which is usually performed is a modification of Snellen's. About 2,000 of these operations were performed during 1906. As to this Mr. MacCallan states:

Snellen's operation is merely a modification of Streatfield's original entropion operation described by him in 1858 in the Royal London Ophthalmic Hospital Reports. An incision is made through the skin of the lid 2 or 3mm. from its free border. The muscle is dissected from the tarsus and a horizontal wedge-

shaped strip is removed from the tarsus immediately above the roots of the lashes. A needle carrying fine silkworm gut is passed through the lower edge of the skin wound vertically upwards, a bite of cartilage above the groove is taken horizontally, and the needle is passed from behind forward through the lower skin flap again. Four such sutures are inserted and then tied. A metal spatula (an improvement on the old shoehorn), made for me by Weiss, is used instead of a clamp. No sutures to approximate the skin edges are usually necessary, though they may be employed. The eyelashes, except those which are displaced inwards, are cut previous to the operation.

The advantages of this operation are many. It is applicable to a very large majority of the cases of entropion met with in Egypt, and being easily performed it can readily be learnt by inexperienced surgeons. It can be rapidly performed; in fact, both upper lids can easily be operated on in fifteen minutes by a moderately competent surgeon. A great effect can be produced in the way of eversion of the lid. The operation is applicable to both upper and lower lids. In a very few cases some lashes are still found to be inverted after the above procedure has been carried out; in these cases an incision through the mucous membrane along the free border of the eyelid immediately posterior to the lashes, as recommended by Agnostaki in 1857, completes the eversion.

There are, of course, a large number of modifications of these operations which we occasionally practise. Van Millingen's graft of mucous membrane from the lower lip is also frequently done, especially in cases where there is much contraction of the eyelid as the result of either of disease or of an ill-planned operation.

Contraction of the upper lid, as the result of operations by charlatans for the relief of entropion, is very often seen. This operation is called the "reed" operation, and consists in the inclusion of a fold of skin of the upper lid between two pieces of reed the ends of which are tied tightly together; the result is that the fold of skin, having its blood supply cut off, necroses and falls off with the reeds, leaving a raw surface which soon granulates and becomes covered with epithelium. The primary result of the inclusion of the fold of skin is the eversion of the eyelashes, a result which it is desired to produce; the secondary result is the shortening of the upper lid, often to such an extent

that permanent lagophthalmos results, with consequent degenerative effects on the cornea.

Most of our lid operations in adults are done under the influence of adrenalin and cocaine injected hypodermically.

All operations on the lids are performed on out-patients, who go away after the operation and return to be dressed after three or four days.

As regards the treatment of trachoma I have nothing new to chronicle. We carry out surgical procedure of some kind or other on about three-quarters of the cases of trachoma that we treat, such as scraping, scarification, squeezing, or combined excision of tarsus and conjunctiva as performed by Kuhnt. I have radium at my disposal to the value of £150, but I am unable at the present time to pronounce definitely on its therapeutic value for trachoma.

Conclusion.

The amount of suffering relieved has been very great, and it will be increased with each new hospital. The principles of cleanliness are taught by excluding patients with dirty faces.

The prevention of trachoma seems almost a hopeless task among, at a rough estimate, the six million people infected with it. Comprehension of ophthalmic hygiene is not beyond the powers of boys now being educated in the government schools. It is there that this must be taught by the practical treatment of the eyes of trachomatous pupils. In 1901, 51 per cent of pupils in the government schools in Cairo showed evidence of trachoma. In 1904, Mr. MacCallan, in the government school at Damietta, found 56.9 per cent showing evidence of trachoma; 9.7 per cent had eye affection other than trachoma; 25.5 per cent had gross corneal change sufficient to cause deterioration of vision.

An arrangement has now been made whereby the staff of the ophthalmic hospitals shall undertake regular daily inspection and treatment in October, 1907, at Tanta Government School. Mr. MacCallan hopes it will be possible in the future to provide for the efficient inspection and treatment of all the Government schools in Egypt.—(*British Med. Jour.*)

CLINICAL OBSERVATIONS ON SPRING CATARRH.

By Lieutenant-Colonel H. Herbert, I.M.S.

This is an analysis of 39 cases seen in Bombay in the course of about two and a half years. Only 7 of the patients were females. Cases were seen in adults up to 40 years. These cases at the more advanced ages were mild and not very characteristic, and some of them gave only short histories. In one youth aged 21 years vision had become much reduced through invasion of the cornea, the disease having begun in early childhood. The patients were of all races, including Europeans. Seasonal variation in Bombay is not marked. The patients had little information to give in this respect. But on looking up the dates on which the patients first applied for relief, May, the hottest month, was the only month without any cases, and most occurred in July, the wettest month.

The accepted basis of diagnosis needs widening. Many palpebral cases are liable to be mistaken for trachoma or chronic conjunctivitis. The tarsal conjunctiva may present only injection, fine papillary roughness, slight thickening and loss of transparency, with or without small, scattered, pale, follicle-like elevations. A complaint of itchiness, or in young children of constant rubbing of the lids, is, as is well recognized, strongly suggestive. Another very useful indication in these cases is the complete absence of follicles, or the presence of only very few minute normal follicles, in the lower fornix. In trachoma I believe it is true that the fornix is practically never thus free from involvement. At least the distinction has proved a very serviceable one. In trachoma, if there are no follicles and no lymphoid ridge in the lower fornix, there is some degree of retraction or lines of scar tissue to be seen.

Thirdly, there is usually in spring catarrh no discharge to be seen, but if the upper lid be held everted for a minute and then released, this exposure is sufficient to produce in ten minutes or so a scanty, thin, filmy exudate on the tarsal conjunctiva. A similar membranous film may be reduced by exposure in cases of acute conjunctivitis, but not, I believe, in cases of conjunctivitis

at all likely to be mistaken for spring catarrh. In the least irritative forms and phases of spring catarrh, however, repeated exposures may be needed for a very scanty formation of exudate. It forms most rapidly and freely in the more obviously active and irritative cases—not necessarily cases with large vegetations. The diagnosis may be clinched by examining the membranous discharge for eosinophiles. These cells are found unevenly distributed, but in enormous numbers. I believe that this finding is quite conclusive in the cases where the diagnosis of spring catarrh is in question. It is important to take freshly-formed exudations, because the eosinophile cells break up rapidly, and the free granules are generally not stained by Leishman's or other similar stains. They may, however, be well seen if the specimen be simply stained with eosin and then very lightly counterstained with weak methylene blue. In computing the proportion of eosinophiles, epithelial cells should be ignored. It is the proportion to the total wandering cells that is so striking. And one must not mistake the nuclei of broken-up eosinophiles for lymphocytes.

In one case where one eye was practically normal exudation, obtained with difficulty from this eye, contained only a low proportion of eosinophiles, while that from the affected eye contained the usual charactertistic excess. Such observations, if repeated, would tend to show a local origin of the disease. In another case mentioned below, classed as spring catarrh, but extraordinary in several respects, there were practically no eosinophiles in the discharge. And in another case, also mentioned below, the proportion of these cells varied greatly.

The palpebral exudate can be obtained quite readily in the ocular type of the malady. It may be maintained that there is no purely bulbar spring catarrh. In my experience the tarsal conjunctiva is practically never of quite normal smoothness in ocular spring catarrh; there is at least some slight papillary roughness covering the upper portion of the upper tarsus. This small point may serve in the diagnosis of doubtful limbus swellings.

Fluorescein-staining points, mentioned by me at the Swansea meeting of this Association four years ago, were numerous and characteristic in some limbus thickenings. They were not always confined to the definitely thickened portions of limbus. It appears always worth while to instil fluorescein in cases of doubtful limbus swellings. Occasionally, instead of the more usual bright

greenish yellow superficial spots, minute buried buff-colored points were seen after the use of the stain. The stain had colored the contents of minute epithelial vesicles. These vesicles are commonly less visible unstained, as whitish points, and are so minute as to necessitate the use of the corneal loupe for their enumeration.

Blood counts were made in 22 of the cases. Only the proportion of eosinophiles to total leucocytes was noted. Eosinophilia was slight or moderate in degree. The percentage varied from 3.5 to 17.4. In three patients re-examined after considerable intervals there was variation in the eosinophilia corresponding with changes in the condition of the conjunctiva. But in comparing different cases there was no general correspondence between the abnormality of the blood and the degree of conjunctival proliferation. This may possibly be explained by implication of other mucous membranes. The nasal mucous lining often appeared a little thickened and coated with an excess of mucus, and there was sometimes a complaint of slight chronic catarrh. Fresh mucus taken after syringing the nose sometimes contained eosinophiles. Two adult women gave some history of asthma. One of these patients was said to have had eosinophilia of over 40 per cent during an attack of asthma, though with the eye affection we found only 14 per cent. The association with asthma might be expected to be commoner were spring catarrh more often an affection of adult life.

There were two examples of spring catarrh concurrent with other conjunctival affections. One patient passed through an attack of Morax-Axenfeld conjunctivitis while under observation. Several examinations of exudation for eosinophiles were made in this case, but the examinations were not sufficiently accurately recorded for me to be able to state definitely that the Morax-Axenfeld conjunctivitis lowered the percentage of eosinophiles in the discharge. Such observations are obviously important as bearing on the pathology of the disease—whether it be due to the action of a local parasite or the result of a general systematic condition. In the other case there were palpebral trachomatous remains (lymphoid and scarring) with undoubted ocular spring catarrh.

One case, though classed provisionally as spring catarrh, was distinct from the ordinary type. There were limbus and corneal thickenings with numerous typical fluorescein-staining spots, but

an extraordinary absence of injection and irritation (photograph shown). And the lids presented translucent follicles (one examined microscopically) instead of opaque vegetations. The usual palpebral exudate could not be obtained by exposure, and traces of mucus got from the lower fornix contained practically no eosinophiles.

Treatment.—A trial was given to salol, a saturated solution in almond oil, instilled six times a day. It was commonly used in one eye and adrenalin in the fellow eye. The results were not uniform. Sometimes one eye improved the faster, and sometimes the other, and in other cases neither medicament did any good. Failure is perhaps to be anticipated in the cases where, as I think, the eye affection is only part of a more diffused malady. The use of salol in conjunctival affections was suggested to me by Dr. Surveyor as a remedy without surface action, but acting as a bactericide when split up into its components in the tissues.

Discussion.

Dr. P. F. Carruthers (Guernsey) found difficulty in criticising Colonel Herbert's paper on spring catarrh, as in his experience the disease was very rare. He could not recall having met with a case in the last four or five years.

Mr. D. R. Bardi remembered having seen a couple of cases of spring catarrh recently in Professor Fuchs' clinic in Vienna, and among other symptoms Professor Fuchs relied on the appearance of the conjunctival swellings as more mosaic-like than in trachoma, and on the fact that expression of the follicles from trachomatous lids was easier than from the swellings of spring catarrh.

Mr. Sydney Stephenson (London) alluded to a class of case in which a skin affection coincided with spring catarrh. These cutaneous affections were examples of so-called "summer prurigo" or "solar eczema," and it was probable that the causes that produced the conjunctival affection also produced the skin diseases in question. Diagnosis was difficult only when one lid alone was affected.

Mr. Richardson Cross (Bristol) said that trachoma certainly seemed rare in the West of England. He had seen one typical case of spring catarrh in a boy of 15 always worse in the spring and hot weather. The peculiar plaque on the lid, the milky fluid surface, and the characteristic appearance close to the cornea in the palpebral opening made the diagnosis certain. He was

improving but was not yet quite well. Another case he had seen was in a gentleman of 35 or 40. The tarsal appearances were not typical, and the affection was not specially worse during the spring. The opinion was given that the patient was suffering from spring catarrh, but he felt doubtful as to the diagnosis.

Mr. J. Herbert Parsons (London) thought that the experience at Moorfields was that spring catarrh was rare in England. Doubtless some cases were missed and diagnosed as trachoma. Colonel Herbert appeared to base his diagnosis largely on the presence of eosinophiles in the secretion. It was doubtful if this was absolutely pathognomonic; possibly causes of eosinophilia—asthma, intestinal parasites, etc.—were not always eliminated.

REPLY.

Colonel Herbert thought that the disease was probably commoner than suspected, as mild cases passed unrecognized. The character of the cells in the discharge afforded apparently conclusive evidence.—(*Brit. Med. Jour.*)

ABSTRACTS FROM MEDICAL LITERATURE.

BY W. A. SHOEMAKER, M.D.,

ST. LOUIS, MO.

THE PRESENT STATUS OF PRELIMINARY IRIDECTOMY AS RELATED TO CATARACT EXTRACTION.

Wendell Reber (*N. Y. Med Jr.*, April 6) considers seriatim the arguments against iridectomy in the extraction of cataract, answering most of them with quotations from prominent operators and writers on the subject. He then gives the following arguments for extraction with iridectomy: (1) It does not require as large an incision; (2) capsulotomy is more easily done; (3) delivery of the lens is easier; (4) fewer secondary operations become necessary; (5) iris prolapse is rare; (6) any glaucomic tendencies during the healing are probably forestalled; (7) less confinement to bed. In support of preliminary iridectomy he quotes Coleman's summing up of the arguments, as follows:

1. The maturing of an unripe cataract is frequently hastened.

2. The diagnosis of the character and size of the cataract are facilitated.

3. The surgeon learns of the amount of self-control possessed by the patient.

4. During the extraction there is no hemorrhage from the iris.

5. The iris does not fall in front of the knife.

6. There is an unobstructed doorway opened for the cystotomy and expulsion of the lens and cortex.

7. There is no pressure trauma of the iris as occurs in the simple operation.

8. The iris has healed, leaving only the corneal incision to heal.

9. The operation is shorter and less painful than the combined method.

10. It lessens the danger of iritis; also of glaucoma.

11. It is the operation best suited to complicated cataracts and not unsuited to any.

12. There is less need for subsequent needling operations.

To these arguments Reber adds:

13. That the young surgeon by doing two operations will acquire skill in ocular operations in one-half the ordinary time; that is to say, it is in the nature of most excellent training to the surgeon himself without in the least jeopardizing the patient's chances.

14. Any latent dyscrasia in the blood is altogether likely to reveal itself during the healing after the irridectomy, and the patient may thus be prepared by suitable treatment for the final operation. This seems to the author to be the most important indication of all, since, as he points out in discussing the ætiology of cataract, the majority of persons who develop cataracts are subjects of gout, rheumatism, diabets, chronic constipation producing autointoxication, or some other condition which frequently affects the eye and which in many cases has set up a low grade choroiditis previous to the lens opacity.

The author, in reply to a circular letter of injuiry, received replies from forty-seven prominent ophthalmic surgeons of the country to the effect that they consider preliminary iridectomy the safest procedure for almost all cataracts, and nineteen others consider it a wise thing to do in the presence of complications. Twenty-eight find very little or no use at all for preliminary iridectomy.

SARCOMA OF THE EYELID.

Henry S. Wieder (*N. Y. Med. Jr.,* Nov. 23) reports a case of sarcoma in the lower lid of a child seven weeks old when the tumor was first noticed. After two months' time it resembled a lipoma very much and was removed by making an incision over it and grasping it with forceps. Microscopic examination revealed its true nature. The arrangement of the sarcomatous cells around what appeared to be fat spaces would suggest that the tumor was originally a lipoma which had undergone sarcomatous degeneration. The growth recurring two weeks after its removal it was treated by Roentgen rays and entirely disappeared after five months' treatment. Nine months have elapsed since the original operation and there are no signs of recurrence. The tender age of the patient is the most striking feature of the case.

ON THE TREATMENT OF ALTERNATING SQUINT.

R. J. Coulter (*The Ophthalmoscope,* Nov., 1907) refers to the fact that text-books do not pay much attention to the treatment of alternating squint and that contradictory opinions are held by those who write on the subject. His experience leads him to differ with North who holds that while accurately performed operation will correct the deformity in cases where glasses do not prevent the abnormal conveyance, still a perfect cure in these cases is impossible as there is usually a total absence of the fusion sense. Coulter reports five cases ranging in age from 10 to 18 years and having from 2 D. to 4 D. of hypermetropia, in which glasses, prescribed after careful refraction under a cyloplegic, did not correct the squint. After correcting the excessive convergence by tenotomy of the internal rectus or advancement of the external rectus, or by both, orthoptic training with the amblyoscope and stereoscope developed the fusion sense so well that binocular vision was secured and all of them were able to do bar reading well without glasses. He considers that the best time to undertake this treatment is between the ages of 12 and 16 years, as during this period the time necessary for the training can better be spared than later and the patients are eager to get the binocular vision of the stereoscopic pictures so that they will work out their own cure if provided with stereoscope and suitable pictures.

MEDICAL SOCIETIES.

MEETING OF THE OPHTHALMIC SECTION ST. LOUIS MEDICAL SOCIETY.

June 12, 1907.

DR. BARCK, CHAIRMAN, PRESIDING.

A Case of Migrating Keratitis. Dr. J. Ellis Jennings: This patient is 23 years of age with evidences of congenital syphilis, Hutchinson's teeth, etc. In 1897 at the age of 13 she developed an interstitial keratitis in the left eye which slowly cleared. Final V=5/6. Right eye V=5/4. In January, 1906, she developed a serous iridocyclitis in the left eye which reduced vision to 5/40. This eye still flushes upon the slightest provocation. On February 1, 1907, she complained that the vision of the right eye was failing, V=5/40. Examination showed an infiltration in the deeper layers of the cornea consisting of several opaque docs surronded by a hazy area, with absolutely no signs of inflammation, pericorneal injection or bloodvessels in the cornea. The opacity started at the nasal side of the pupil and has gradually crossed to the temporal side, so that vision which was reduced to 5/40 is now 5/6, the opacity taking four months in transit.

DISCUSSION.

Dr. Alt stated that the case seemed to him particularly remarkable on account of the long interval between the affection of the one eye and that of the other.

Dr. Barck believed the case to be a keratitis due to hereditary syphilis, and stated that the affection in the second eye was apt to pursue a milder course than that in the first, on account of the specific treatment which had been given at the time the first eye was affected.

Dr. Jennings stated that the peculiarity in the case consisted in the migration of the opacity across the cornea without inflammatory signs. Treatment had been confined to the use of dionin daily.

Rupture of Descemet's Membrane from High Intra-ocular Pressure. Dr. A. Alt: Fissures in Descemet's membrane have been found especially in buphthalmus, high grade myopia and glioma retinæ. Some observers appear to have encountered these fissures frequently and others not at all. The author believes that high pressure alone cannot be held responsible, but that other factors, such as the softer tissue of the child (in examples occurring in glioma) and disturbances in the nutrition of the corneal tissue, are to be held accountable.

Recently in a case of glioma, the author observed two double contoured grey lines running in the deeper layers of the cornea concentrically with the corneal periphery, the one 2mm. from the temporal, the other 3mm. from the nasal margin. Sections showed the ruptured ends of Descemet's membrane rolled up spirally towards the cornea or projected straight into the anterior chamber. The close packing of the overlying corneal lamellæ and their straightened appearance suggested that at the time the ruptures occurred the cornea was also torn to some extent. That the ruptures were not very recent was proved by the fact that the ruptured ends were covered with endothelium, and that a new Descemet's membrane had formed in the gap between the ends, which were also covered by a layer of endothelium. Opposite these ruptures Bowman's layer was wanting for some distance, the corneal tissue being simply covered with epithelium.

REVIEWS.

LES CORPS ETRANGERS MAGNETIQUES INTRA-OCULAIRES ET LEUR EXTRACTION (The Magnetic Intra-ocular Foreign Bodies and their Extraction). By Dr. R. Béal. Paris, 1908. G. Steinheil.

A clinical study of a series of extractions of magnetic foreign bodies from the interior of the eye by means of Hirschberg's or Volkmann's large magnet. The neat, well illustrated book is well calculated, as is its purpose, to show the French colleagues the value of the giant magnets. The text of the book is followed by a very complete bibliography on the subject.

RAPPORT SUR LE CATARRHE PRINTANIER (Report on Spring Catarrh). By Professor Th. Axenfeld.

This report on spring catarrh was made to the French ophthalmological society by Axenfeld and is based mostly on personal researches on this still obscure subject. The author comes to the conclusion that spring catarrh is an inflammatory disease and that the excrescences are secondary occurences. The report is, as all of the author's work, a model of scientific study. The illustrations are excellent.

OPHTHALMIA NEONATORUM. With special reference to its causation and prevention. By Sidney Stephenson, M. B., C.M. London, 1907. G. Talman & Sons.

An exhaustive treatise on ophthalmia neonatorum, the Middlemore prize essay of the British Medical Association of 1907. It contains a thorough study of all that is at present known concerning the ætiology, prevention and treatment of this still all too frequent disease. Every oculist should study this splendid work. It is, however, a pity that such books are not studied by the laity, also. They might be of such great value in helping to stamp out this disease, an aim which every civilized country should persistently strive for.

AN EXPERIMENTAL STUDY OF VISUAL FIXATION. By R. Dodge. Review Publishing Co., Baltimore, Md., and Lancaster, Pa. November, 1907.

This monograph is one of a series of studies from the psychological laboratory of the Wesleyan University.

Having explained the meaning of the word fixation as applied to the act of vision, the author shows that in consequence of involuntary movements of the eye there is no real point of fixation, but instead of it a field of fixation. He then goes on to study these movements and their influence on the function of fixation and kindred subjects, and elucidates his work by interesting experiments by means of a photographic registering apparatus. The description of these must be read in the original, which we highly recommend to our readers.

ALT.